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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,751	07/31/2001	Wen-Yih Liao	LIAO3030/EM/7087	2784

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BACON & THOMAS, PLLC
625 SLATERS LANE
FOURTH FLOOR
ALEXANDRIA, VA 22314

EXAMINER
ANGEBRANNDT, MARTIN J

ART UNIT	PAPER NUMBER
1756	10

DATE MAILED: 09/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/917,751	LIAO ET AL.	
	Examiner	Art Unit	
	Martin J Angebranndt	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. The response provided by the applicant has been read and given careful consideration. Responses the arguments offered by the applicants are presented after the first rejection to which they are directed. Rejections of the previous office action not found below are withdrawn based upon the amendments and arguments of the applicant. With respect to the issue of values of m, the applicant must be seeking to embrace charged complexes as well.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 17-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The language "used as a data storage media" is confusing. It is not clear if this is an intended use and seeks coverage for the solution itself or if it is limited to an optical storage medium. If it is limited to the medium, then a substrate should be recited as the composition is not described in the specification as self-supporting.

In claim 19, after "II", "III" and "IV" - - of formula (I), - - . This **suggested language would** clearly indicate that these are a subset of formula (I), and render them definate. The previous statements were an inaccurate assertion of the examiner's position.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 17-20 and 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liao et al. '087 combined with Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999).

Liao et al. '087 teach the use of mixtures of pentamethine and trimethine indolene dyes which have 4-methoxycarbonyl benzyl moieties bound to the nitrogen on the indole ring. Figure 1 shows the absorbance of the trimethine dye to be at 556 nm and figure 2 shows the pentamethine dye to have a maximum absorbance at 648 nm. The recording disk structure is a polycarbonate substrate coated with a solution of the two dyes, overcoated with a reflective layer and a protective layer. (5/39-60). The total content of the trimethine dye in the coating solution is 0.5 to 5% (claim 7), preferably 1.3 to 1.7% (claim 8). The amount of the pentamethine dye to the trimethine dye is 1 to 10 % (claim 5), preferably 3.5 to 5% (claim 6). The various coating solvents are disclosed in claims 9-15 and include alcohols, ethers, ketones, tetrafluoropropanol, chloroform, dichloromethane and dimethylformamide. Useful counterions are disclosed including acid anions, halogens, alkylsulfonate arylsulfonate and perchlorates. (3/17-28). The use of 1.5 g of the trimethine dye and 0.075g of the pentamethine dyes in 100g of a TFP solution is disclosed. The pentamethine dye is present as 5% of the trimethine dye. These dyes are descriobed as having improved solubility and higher thermal stability vs. other similar cyanine dyes. (2/2-4).

Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999) describes the addition of TCNQ to indoleneic cyanine dyes and that these do not need quenchers. The lightfastness of the cyanine dyes is disclosed in

the abstract and supporting data. Increased reflectivity is also disclosed with respect to figure 5 when using quenchers.

It would have been obvious to add TCNQ compounds disclosed by Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999) to the cyanine dyes containing optical recording media of Liao et al. '087 with a reasonable expectation of gaining in reflectivity and lightfastness taught by Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999) and/or it would have been obvious to use the cyanine dyes of Liao et al. '087 in place of those used in the examples of Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999) with a reasonable expectation of realizing the gains in solubility and thermal stability taught by Liao et al. '087.

The applicant agues that there is no motivation to combine, which entirely neglects the factual evidence of Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999) which specifically describes the increases in reflectivity, light fastness and ability to achieve these without separate quenchers. This teachings is in the prior art, not soley in the applicant's disclosure. As the difference between the cyanine dye claimed and that of Liao et al. is the use of the TCNQ anion as the counter ion, which is taught by Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999) all the limitations have been considered. The applicant argues that the data in the specification should obviate the obviousness rejection. **The examiner notes that the benefit disclosed in the specification, light fastness or photostability is recognized as due to the addition of the TCNQ anion by the prior art of record (see**

Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999)) and therefore cannot be considered unexpected. The applicant may in the future submit data evidencing that the cyanine dyes having the 4-methoxycarbonyl benzyl moiety/moieties gain more than the other cyanine dyes, but a reasonable comparasion is not yet on the record. **The problem with the applicant's arguments are that the benefits ascribed to the addition of the TCNQ dye are already appreciated in the art. The rejection stands.**

The examiner notes that the statements attributed to Weh-Yih LIAO are not presented in proper declaration form and do not provide any support for the assertion of solubility, but merely appears to be speculation. The examiner notes that the weight percent indicated pointed out in the arguments does not appear in the independent claims, but only in the dependent claims. The examiner notes that the solubility in various solvents is found for the cyanine dyes is found in the primary reference which claims 1-10% of the cyanine dye and the cyanine dyes with the substituents on it is specifically described as having good solubility in organic solvents and good thermal stability (2/2-3, Liao et al '087). The increased reflectivity addresses the issue of increases in the imaginary portion (k) of the complex refractive index (n+ik). Additionally, the advantages are to the coated layer, not merely the solution. The rejection stands.

6. Claims 17-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liao et al. '087 combined with Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999), further in view of Sato et al. '839.

Sato et al. '839 teaches that unsymmetrical indoleneic cyanine dyes have higher solubility and stability. (abstract and 2/10-15). Indoleneic and benzoindolenic dyes are

described throughout. The addition of stabilizers is disclosed. (21/49 and 21/57-23/35). The addition of various materials to the recording layer is disclosed including polymeric binders, the polymeric binder is held to act as an adhesive/glue. The substituents may be substituted or alkyl moieties.

In addition to the basis provided above, it would have been obvious to modify the combination of Liao et al. '087 and Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999) by modifying one of the substituents on the dyes to be an unsubstituted alkyl, specifically butyl, rather than an alkyl substituted by a methyl ester of 4- benzoic acid with a reasonable expectation of increasing the solubility of that dye.

The rejection stands for the basis provided above as no further arguments were directed at this rejection beyond those addressed above.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebranndt whose telephone number is 703-308-4397. The examiner can normally be reached on Mondays-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Martin J Angebranndt
Primary Examiner
Art Unit 1756

September 9, 2003